

Please add the following new claims:

a2 SUB B1 35. A method of fabricating a semiconductor structure comprising:

providing a semiconductor substrate;

providing at least one lattice mismatched epitaxial layer on said substrate; and

planarizing the surface of said layer.

36. The method of claim 35 further comprising providing at least one second crystalline epitaxial layer on said layer.

37. The method of claim 35, wherein said step of providing said layer comprises growing a GeSi relaxed graded region on said substrate.

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38. The method of claim 37 further comprising incorporating compressive strain in said grade region to offset tensile strain incorporated during thermal processing.

SUB B2 39. The method of claim 38, wherein said step of incorporating compressive strain comprises decreasing the growth temperature as Ge concentration increases in said graded region.

SUB C3 40. The method of claim 39, wherein said step of incorporating compressive strain comprises growing alloys of $\text{Ge}_x\text{Si}_{1-x}$ from $x=0$ to about $x \approx 35\%$ at 750°C , growing alloys from $x=35$ to about $x \approx 75\%$ at between 650°C and 750°C , and growing alloys greater than 75% at 550°C .